

**COLORADO RIVER RECOVERY PROGRAM
FY-2004/05 PROPOSED SCOPE OF WORK for:
Colorado River Decision Support System (CRDSS)**

Project # : 71

Lead Agency: Colorado Water Conservation Board
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Category

☒ Ongoing project
☐ Ongoing-revised project
☐ Requested new start

Expected Funding Source

☐ Annual funds
☐ Capital funds
☒ Other (cash)

I. Title of Proposal:

Colorado River Decision Support System (CRDSS)

II. Relationship to Recovery Program:

Assess legal and physical availability of water and compact considerations for protection of instream flow water rights for the Little Snake River, the Yampa River above and below the Little Snake River, the White River, the Colorado River (mainstem), and the Gunnison River. Provide hydrology support to develop and evaluate flow augmentation alternatives for the Yampa and Little Snake Rivers. Provide a depletion accounting report for the 15-Mile Reach of the upper Colorado River every 5 years, as described in the 15-Mile Reach PBO.

RIPRAP Activity Numbers:

Yampa and Little Snake Rivers: I.A.1.d., I.B.3., I.C.3., I.D.2.

White River: I.C.

Colorado mainstem: I.A.3., I.A.4., I.B.3

Gunnison River: I.B.

III. Study Background/Rationale and Hypotheses:

The CRDSS is intended to support better decision making with respect to the utilization of Colorado River water resources. The CRDSS provides computer databases and tools to make informed and timely decisions regarding the use and operation of Colorado's water resources in the Upper Colorado River Basin. The CRDSS operates in accordance with existing compacts

and state laws governing the administration of water and water rights. The CRDSS allows planning for the optimal use and development of Colorado's water resources to occur.

In relation to the Recovery Program, CRDSS is being used to evaluate the physical and legal water availability at different locations along a stream and to determine the amount of water available for instream flow appropriations. It can also provide information to help determine the impacts of endangered fish flows on Colorado's ability to develop its full compact apportionment and to evaluate the impact of future water use on streamflow in designated critical habitat.

CRDSS is also used to provide stream depletion accounting in accordance with the 15-Mile Reach PBO.

IV. Study Goals, Objectives, End Product:

The study goals and objectives of CRDSS are as follows:

- A) To support interstate compact analysis, including determination of water availability for further development and the optimization of Colorado's Compact apportionment.
- B) To support water resources management within Colorado, including the use of basin-wide models, the evaluation of existing and future instream flow appropriations, and provision of water use data as necessary for RIPRAP.

V. Study Area: State of Colorado, Upper Colorado River Basin

VI. Study Methods/Approach:

A yearly maintenance program has been established to make monies available to each river basin that was part of CRDSS. Due to state budget cuts, the FY-2004 CRDSS maintenance budget is \$200,000. While this is a significant reduction in funding, the CWCB is trying to minimize the impact to the UCRRIP. Therefore instead of devoting approximately half its maintenance funding to the RIP, this year the CRDSS program has allocated the entire amount to updates and improvements that will benefit the Recovery Program.

VII. Task Description and Schedule:

Maintenance of CRDSS involves provision of expertise in the applications of CRDSS, including software and hardware upgrades and data updates. Detailed task description in section VIII below.

VIII. FY-2004 Work:

The work performed in FY-2004 will focus on completion of the update of the Colorado mainstem CRDSS products.

This work began in FY-2003 and will be completed in FY-2004.

The primary tasks are:

1. Update and enhancement of the monthly StateMod surface water model of the Colorado mainstem:
 - a. Development/revision of all required StateMod input files with addition of data through water year 2002
 - b. Development/revision of C1 data set input files with addition of data through water year 2002 and updates to reflect current RIPRAP operations (including incorporation of updates made during CFOPS modeling)
 - c. Calculation of baseflows using new variable efficiency option for diversions
 - d. Review and incorporation of 1993 and new 2000 irrigated acreage data
 - e. Revision of key structure and aggregation data
 - f. Review of database reservoir end-of-month contents
 - g. Simulation of historic and calculated scenarios
 - h. Comparison of historic and calculated results to previous model
 - i. Additional model calibration
 - j. Revision of documentation
2. Development of a daily StateMod surface water model of the Colorado mainstem from the updated monthly model:
 - a. Selection of key streamgages to define daily patterns
 - b. Development/revision of all required StateMod input files
 - c. Simulation of daily historic scenario and determination of calibrations requirements
 - d. Calibration of daily model
 - e. Documentation of daily model
3. Project Management
4. Transfer of mainstem improvements to the Gunnison, Yampa and White river basins as applicable and as funds allow.

Tasks 1-3 will be performed by a contractor and completed by June 30, 2004. The updates will enhance the existing model and prepare Colorado to provide the required depletion accounting report in FY-2005/06 as per the 15-Mile Reach PBO and RIPRAP.

The StateMod White River Model will also be updated during FY2004.

Budget: Approximately \$200,000 for tasks 1-3, which uses both FY-2003 and 2004 funds. Another small amount is allocated to regular ongoing maintenance tasks.

FY-2005 Work:

FY-2005 Work will focus on incorporating 2003 – 2005 data into the StateCU and StateMod data sets and performing model runs to determine stream depletion accounting as described in Appendix B of the 15-Mile Reach PBO. Data collected will include streamflow, diversion records, reservoir contents and operation, and climate information.

The final FY-2005 budget has yet to be determined by the Colorado Legislature.

IX. Budget Summary:

CWCB Cash Contribution

FY-2004: Approximately \$200,000.

Task 1	Update/enhancement of monthly Colorado mainstem model:	\$ 130,000
Task 2	Development of daily Colorado mainstem model:	\$ 50,000
Task 3	Project Management	<u>\$ 20,000</u>
Total		\$ 200,000

Tasks 1 – 3 will be funded by both FY-2003 and FY-2004 funding.

Other minor maintenance tasks will be performed by contractors in FY-2004 with the remainder of the maintenance funds.

The StateMod White River basin update will be done inhouse as part of the in-kind services provided by the CWCB to the UCRRIIP and reported under Colorado's Program Management and Instream Flow Scopes of Work.

FY-2005: Approximately \$150,000.

The actual amount will be determined by the Colorado Legislature in January 2005.

X. Reviewer(s): Not applicable.

XI. References: Not applicable.